

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference  67007-015	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No.  PCT/US2004/028320	International filing date (day/month/year)  01/09/2004	(Earliest) Priority Date (day/month/year)  09/09/2003
Applicant  UNITED TECHNOLOGIES CORPORATION		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b.  With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2.  Certain claims were found unsearchable (See Box II).

3.  Unity of invention is lacking (see Box III).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

VALVE

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 2

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

- b.  none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2004/028320

## Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

A control for controlling the amount of heated fluid entering the inlet of the driving heat source for a refrigerant absorption cycle is controlled to vary the relative amount of heated fluid entering the driving heat source inlet, and being dumped to atmosphere. Preferably, a diverter valve is utilized such that a first valve body (40) communicates the flow into the driving heat source inlet, and moves in opposition to a second valve body (46) controlling the flow through the exhaust. The two valves bodies (40,46) are preferably mechanically linked. Since the heated fluid is not allowed to enter the refrigerant absorption cycle as its drive heating source, no additional hardware and control for dumping excess heat is necessary within the refrigerant absorption cycle. A computer control preferably drives the first valve to a precise position and the linkage ensures the second valve is also received at a precise position.

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/028320

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 F16K11/22 F25B49/04

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F16K F25B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 499 691 C (SCHIFF UND MASCHB AKT GES DEUT) 12 June 1930 (1930-06-12) figure 1 -----	1-11
X	US 2 383 861 A (HOPKINS DAVID W) 28 August 1945 (1945-08-28) figures 1-5 -----	1-11
X	US 6 216 737 B1 (GEERS WILLIAM ET AL) 17 April 2001 (2001-04-17) abstract; figures 1-4 -----	1-11
Y	-----	13-17, 20
X	WO 02/086397 A (ARITA KAZUHEI ; OGAI MASATO (JP); YAZAKI CORP (JP); TONGU SHINJI (JP);) 31 October 2002 (2002-10-31) abstract; figure 6 -----	12, 18, 19
Y	-----	13-17, 20
	-/-	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

17 December 2004

Date of mailing of the international search report

14/01/2005

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/028320

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 178 267 A (YAZAKI CORP) 6 February 2002 (2002-02-06) abstract; figure 1 -----	12,18-20
A	US 4 388 812 A (CLARK SILAS W) 21 June 1983 (1983-06-21) abstract; figure 1 column 4, line 60 - column 5, line 9 -----	1-20
A	US 4 749 004 A (PEASH DOUGLAS E) 7 June 1988 (1988-06-07) figures 1,2 -----	1-20
A	DE 32 04 288 A (VAILLANT JOH GMBH & CO) 11 August 1983 (1983-08-11) figure 1 -----	1-20
A	DE 29 01 207 A (KIESELMANN GMBH) 24 July 1980 (1980-07-24) figures 1-8 -----	1,9
A	DE 28 03 818 A (NOCADO ARMATURENFAB GMBH & CO) 2 August 1979 (1979-08-02) figures 1-3 -----	1,9

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/028320

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
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